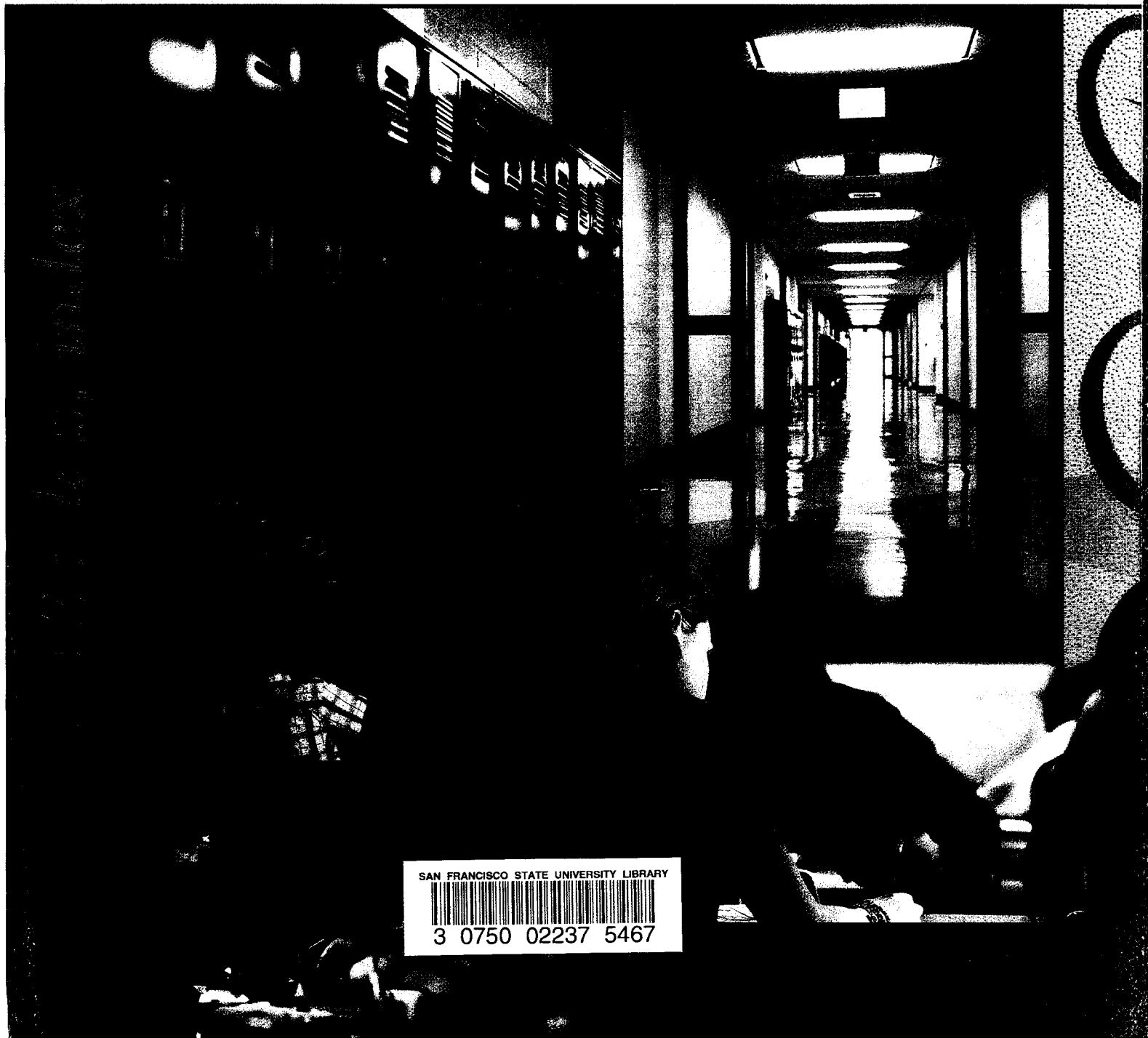


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LEARNING AND TEACHING FOREIGN LANGUAGES

Although a large proportion of the world's population speaks two (or more) languages, the psychological study of second/foreign language learning is not commonplace. Typically, courses in second language learning are not offered in departments of psychology; thus, few students ever have the opportunity to avail themselves of such knowledge. This is unfortunate because psychology has much to offer to the field of foreign language instruction. Almost everyone has studied a second language at some time in their schooling, but only a few psychologists have developed a specialized interest in learning and teaching a second language (e.g., Bialystok, 2001; Hakuta, 1986; Hamers & Blanc, 2000; Rivers, 1964; Krashen, 1981).

The relevance of second language learning and teaching for psychology is as critical as any topic having to do with the intricacies involved in any aspect of human learning. The goal here is to discuss a few of the psychological questions involved in second language learning and to provide a theoretical and empirical understanding for why the learning and teaching of foreign languages is a legitimate area of work for psychologists (see McLaughlin, 1987; Padilla, 2006). This discussion will be framed around key questions in the field of language education.

METHODS FOR TEACHING A NEW LANGUAGE TO STUDENTS

Over the years many methods for teaching a new language have evolved. The most longstanding method and the one that has been most heavily influenced by the work of psychologists is the Audio-Lingual Method (Rivers, 1964). The goal in this method is to overlearn the target language through communicative drills directed by the teacher. The idea is to use the target language to the point that it becomes automatic and in the process new habits in the language are formed that overcome the tendency to rely on first language habits. In this method new vocabulary and grammatical structures are presented through teacher-directed dialogue drills, as well as heavy reliance on language lab drills organized around imitation and repetition drills. Students' correct responses are positively reinforced. Listening and speaking in the second language are the objectives in this method. Students' native language habits are considered as interfering, thus the use of the native language is restricted in the classroom. This method emphasizes proper pronunciation, simple everyday dialogues, and correct grammar.

In recent years there has been a gradual shift in language education to an approach that favors communicative competence in the second language. This is

called the Communicative Approach. The goal of this approach is to teach students the new language through classroom activities that engage students in the process of negotiating meaning in everyday conversations, rather than in teacher-directed repetitions of contrived dialogues. Students are taught to be communicators, not learners merely of vocabulary and grammar as in the audio-lingual method. In this approach to teaching a new language, the emphasis is on developing motivation to learn through establishing meaningful, purposeful things to do with the new language (see Padilla, 2006). Individuality in using the new language is encouraged, as well as cooperation with peers, which promotes a sense of personal competence in the use of the target language.

DEFINING FOREIGN LANGUAGE AND SECOND LANGUAGE EDUCATION

The social context in which a new language is learned is the deciding factor in determining whether the new language is identified as a foreign or second language. For example, a program that teaches students English in school in the United States is referred to as English as a second language (ESL) instruction. However, in the same school and down the hall from the ESL classroom, a teacher may be instructing students in Spanish, French, or Japanese. Because these languages are not the primary medium of communication in the United States, students in these classes are learning a foreign language (FL). The distinction is subtle but important. English language learners (ELLs) are immersed in English and get much more authentic English input from native speakers than students learning a foreign language (e.g., French) since this is not the medium of everyday communication in the United States. Thus, English learners have many sources (e.g., peers and mass media) and opportunities for receiving English language input. In contrast, students learning a foreign language in an American school typically have only their teacher to rely on for authentic language input. The distinctions in language learning contexts are important because they reveal how language instruction is planned and implemented.

An important contrast between foreign language education and English language instruction is that in an FL class students are not expected to develop proficiency in one or two years of instruction. Even students who reach the advanced placement level in an FL are seldom capable of showing a high level of oral proficiency in the FL. However, in ESL instruction students are expected to be mainstreamed into English-only classrooms within one or two years. For many learners this is an unreasonable expectation that often creates other related school achievement difficulties. Thus, expectations differ depending on whether the discussion is about learning a second or a foreign language.

ELEMENTS INVOLVED IN LEARNING A SECOND LANGUAGE

Language learning is complex, whether the language is acquired in infancy as a first language or later in life as a second or third language. The learning process consists of acquiring a language system, rather than learning a series of disconnected components. A language system consists of not only grammatical rules and vocabulary, but also the proper way to use language, such as requesting information, inviting a friend to a social event, thanking a person for a kind act, or greeting a stranger. In addition, a language system includes discourse, whereby speakers learn what to say to whom and when.

In their research on bilingualism, Hamers and Blanc (2000) studied how bilinguals carry out a large variety of cognitive tasks in the two languages. Bilingualism involves having a command of the linguistic system—the phonology, morphology, syntax, semantics, and pragmatics—that constitute the essence of each language, but it also means being able to keep the languages separate cognitively when necessary, and strategies to search the memory store in one language in order to use the information in the other language.

The specific elements of the language system learned in a second language classroom vary by language. For example, the student learning Chinese or Farsi must learn an entirely new orthography, whereas students learning Spanish will only have minor differences in alphabets to contend with (Akamatsu, 2002). Some languages will have very different sentence structures compared to English; others will appear to be more familiar. However, familiarity with the language system alone is not enough to enable students to engage in successful communicative activities. Learners also acquire the strategies that assist them in bridging communication gaps that result from differences of language and culture. Examples of these strategies include circumlocution (saying things in different ways), using context clues, understanding, interpreting, producing gestures effectively, asking for and providing clarification, and negotiating meaning with others.

In language learning and teaching an important concept is comprehensible input. Students can only learn what they understand and in language teaching this means that the teacher must make content comprehensible. There is a theoretical debate about what exactly comprehensible input is and how it advances a learner's knowledge of a new language (Sanz, 2005). However, at a practical level teachers understand that with early to intermediate language learners, teaching for comprehension includes providing many nonverbal clues such as pictures, objects, demonstrations, gestures, and intonation cues. As competency in the language develops, other strategies include using hands-on activities and coopera-

tive or peer tutoring techniques. As learners' vocabulary and knowledge of the language expands, they are able to comprehend more information. Ultimately, mastery demands that learners understand what the teacher is saying in class or what a native speaker is saying in a real-life context as well as the appropriate conversational interactive exchanges in and out of the classroom. Sound strategies for teaching languages to students who differ by their level of proficiency have been incorporated into a compendium, "Standards for Foreign Language Learning in the 21st Century" (National Standards in Foreign Language Education Project, 1999). All of the professional language associations have endorsed the Standards and they are a critical element in teacher education programs today. In fact, education students must demonstrate mastery of these Standards in order to receive their teaching credential to teach a foreign language.

THE ROLE OF MOTIVATION

Gardner (1985) studied a variety of psychological and social variables in examining the role of motivation in second language learning. According to Gardner, anyone who seeks to learn a second language recognizes the potential value of speaking a new language and must be motivated to learn the language for one of two reasons: instrumental purposes (e.g., to get a job or to meet a school graduation requirement) or for integrative purposes (e.g., to understand better how native speakers of the language think and behave). Motivation underlies the learning of language because it addresses the goals and expectations of the learner as well as the teacher. If a person is only interested in enough survival skills in a new language to be able to secure employment then the level of attainment will be different from learners who want to read and discuss the important literature of another culture. In an extension of Gardner's research, Sung and Padilla (1998) found an "ethnic heritage-related motivation" for learning Chinese, Korean, or Japanese. Students who wanted to learn the language of their ancestors were more motivated to learn these more difficult languages, especially if their parents also wanted them to learn the language. Thus, knowing students' reasons for learning a second language enables teachers to plan an appropriate curriculum.

TIME INVOLVED IN LEARNING A SECOND LANGUAGE

How long it takes to learn a second language is an important pedagogical as well as psychological question because the answer depends in part on the learner's age, aptitude, personality, and motivation. If a person wants just enough language to be able to interact on a social level with native speakers, he or she will spend considerably less time learning the new language than a person

who wants to be able to succeed academically in a classroom in the new language and compete with native speakers.

The learning of basic survival communication skills in a new language takes a few months to a year or two depending on the amount of language input the learner receives from native speakers of the target language, the accuracy of second language output demanded by the context, the motivation of the learner, and the amount of practice in listening and speaking the new language. This depends too on the age of the learner. The knowledge of the new language that a child would need to interact with native speakers on the playground is different from what would be required of a university student who intends to study in Spain or China and take academic coursework in Spanish or Mandarin with native students. The time needed to master a second language for interpersonal communication is considerably less than the time required to master second language oral and literacy (reading and writing) skills in order to do academic level courses with native speakers of the second language.

In sum, there is no one answer to the question of how much time is necessary to learn a second language. The answer depends on expectations of what language skills (oral, listening, reading, or writing) and level of proficiency are desirable in the student. If the goal is basic survival skills, the amount of time needed will be far less than if the aim is to develop a high level of communicative competency.

ATTAINING PROFICIENCY IN A SECOND LANGUAGE

A learner who is proficient in a second language is able to exhibit a high level of accuracy in the second language. This includes being able to use the new language with grammatical accuracy in ways that are contextually and culturally authentic. Accuracy pertains to the precision of the message in terms of fluency, grammar, vocabulary, pronunciation, and cultural appropriateness. When language practice reflects real-world use, it forms the foundation for developing proficiency. This is true regardless of age, grade level, and type of language instruction offered the student.

The demands of accuracy in a second language, as can be seen, are high. There are four modes of expression—listening, speaking, reading, and writing—that constitute the paths by which information and concepts are transmitted from one person to another. Listening and reading are receptive skills; speaking and writing are productive skills. Students cannot create the language they are learning without first receiving input from teachers, peers, and the media. Thus, developing proficiency in each of these modes reinforces proficiency in the other modes. For

example, learning to read in a new language facilitates vocabulary acquisition, which augments speaking and writing in the second language. Thus, all four modes of expression are important elements in language learning, and their use is required in all formal classroom contexts.

Bialystok (2001) has shown that language input provided to language learners and the language output expected of them must be developmentally appropriate in two senses: (1) appropriate to the developing level of second language learning that the person has attained, and (2) appropriate to the cognitive and linguistic level of the student in his or her first language. In first language acquisition research shows that parents simplify their language input to their young children by speaking slower, frequent repetition, and simplified vocabulary and grammar. Hakuta (1985) argues that good language teachers use these same strategies in the early stages of ESL or FL instruction.

As the learner advances in the acquisition of the second language, three categories of discourse describe language use on the basis of receptive and productive skills. The categories are: interactive comprehension and production, receptive comprehension, and comprehensible production. Examples of interactive comprehension and production include telephone conversations and correspondence with friends through e-mail or instant messaging. These activities provide for an exchange of ideas. If one person does not understand the interchange, it is relatively simple to achieve understanding by seeking clarification. The interactive comprehension and production category of discourse is common in the social use of language.

Receptive comprehension refers to activities such as reading a book in a science class or viewing a video in a history class, activities that preclude seeking clarification from the author or narrator. In these situations, readers or listeners rely solely on their reservoir of concepts and language decoding skills for comprehension. Receptive comprehension becomes increasingly important with each grade level because students are required to do more reading and to integrate the information acquired with new knowledge presented by the teacher. Teachers are very important in this stage since they can provide valuable strategies to help students advance to more complex language structures.

Comprehensible production is critical because it shows what a learner is capable of doing in their new language (e.g., completing a job application, making an oral class presentation). During such activities the second language user makes a presentation or writes a letter that precludes any seeking of clarification of meaning by the reader or listener. This places a responsibility on the second language user to communicate with clarity and

accuracy. The comprehensible production category of discourse is common in the academic use of language. Further, many high-stakes tests (e.g., AP tests in a foreign language) include a writing component that requires students to produce an essay that is scored not only for grammaticality, but for the persuasiveness of an argument.

METHODS FOR TEACHING A SECOND LANGUAGE

Many strategies have evolved over the years to teach a second or foreign language to students. It is beyond the scope of this entry to cover all the methods that can be found in schools. However, two such methods used at the elementary school level will be described.

Foreign Language in the Elementary School. In this model a second language is presented as a distinct subject—much like science or social studies—that is typically taught at least three to five times per week, with classes lasting anywhere from 20 to 50 minutes. Most FLES programs focus on teaching the four communication skills, as well as the culture of the speakers of the language being learned. Some programs called content-based or content-enriched programs incorporate themes and objectives from the regular academic curriculum as a vehicle for developing foreign language skills. Depending on the frequency and time devoted to language instruction and the opportunities provided for practicing the language, children can attain substantial second language proficiency.

Immersion Programs. Immersion programs have grown in popularity in Canada and the United States since the late 1970s (Padilla, 2006). In an immersion program English-speaking children spend part or all of the school day learning a second language (e.g., French, Spanish, Japanese). In a full (total) immersion program, students learn all subjects (e.g., math, social studies, science) in the second language. Partial immersion programs operate on the same principle, but only a portion of the curriculum is presented in the second language. Partial immersion programs are generally more common than full immersion programs. In this type of program students may learn social studies and math in the second language for part of the day, and science and language arts in English for the remainder of the day. In both full and partial immersion, the second language is the medium for the content instruction rather than the subject of instruction. Students enrolled in immersion programs work toward full proficiency in the second language and usually reach a higher level of language competence than students participating in FLES or other types of language programs. The research findings supporting this conclusion are well established.

In conclusion, there are many ways in which psychologists can contribute to the study of foreign language teaching and learning. Psychologists have much to give to educators and parents who want to know more about the latest research in cognition and language and how this applies to learning a second language.

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LEARNING AND TEACHING MATHEMATICS

Major theoretical approaches to learning and teaching mathematics have been developed from three psychological perspectives of human learning. The *social constructivist approach* to mathematical learning emphasizes classroom learning as a process of both individual and